AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A method for monitoring in-situ a chemical composition at or near a surface of a wafer during plasma etch to detect defects comprising:

providing a semiconductor substrate comprising at least one top layer, wherein the semiconductor substrate comprises at least one chemical-containing contaminant;

subjecting the semiconductor substrate to a plasma etch process, whereby at least a portion of the top layer is removed;

during the plasma etch process, detecting for a presence of the chemical-containing contaminant using one of an Auger Electron Spectroscopy system or Energy Dispersive X-ray Analysis system; and

if present, determining whether the presence of the chemical-containing contaminant exceeds a threshold limit.

2. (Original) The method of claim 1, wherein the at least one chemical-containing contaminant includes any one of carbon, calcium, sulfur, aluminum, tungsten and nickel.

3. (Original) The method of claim 1, wherein the semiconductor substrate is enclosed in a plasma etch chamber during the plasma etch process.

4. (Original) The method of claim 3, wherein the plasma etch chamber comprises at least one chemical-contaminant-sensitive detector systems.

5. (Currently amended) The ~~system~~ method of claim 1, wherein the defect detector, using one of an Auger Electron Spectroscopy system or Energy Dispersive X-ray Analysis system, indicates the presence of the one or more chemical contaminants at or below a top surface of the top layer.

6. (Currently amended) The ~~system~~ method of claim 5, wherein the Auger electron spectroscopy system indicates the presence of the one or more chemical contaminants at a top surface of the top layer and at about a 1-5 nm depth from the top layer surface.

7. (Currently amended) The ~~system~~ method of claim 5, wherein the Energy Dispersive X-ray Analysis system indicates the presence of the one or more chemical contaminants at about 1-2 Fm from the top layer surface.

8. (Currently amended) The ~~system~~ method of claim 1, further comprising suspending a semiconductor fabrication process if the chemical-containing contaminant exceeds the threshold limit.

9.-17. (Cancelled)

18. (Original) A method for monitoring in-situ a chemical composition at or near a top surface of a wafer during plasma etch to detect defects comprising:

providing a semiconductor substrate comprising at least one top layer, wherein the semiconductor substrate comprises at least one chemical-containing contaminant;

subjecting the semiconductor substrate to a plasma etch process, whereby at least a portion of the top layer is removed;

during the plasma etch process, detecting for a presence of the chemical-containing contaminant using one of an Auger Electron Spectroscopy system or Energy Dispersive X-ray Analysis system; and

if present, suspending the semiconductor fabrication process when the at least one chemical-containing contaminant exceeds a threshold limit.

19. (Original) The method of claim 18, wherein the at least one chemical-containing contaminant includes any one of carbon, calcium, sulfur, aluminum, tungsten and nickel.

20. (Currently amended) The ~~system~~ method of claim 18, wherein the Auger Electron Spectroscopy system indicates the presence of the one or more chemical contaminants at the surface of the top layer or at about a 1-5 nm depth from the top layer surface.

21. (Currently amended) The ~~system~~ method of claim 18, wherein the Energy Dispersive X-ray Analysis system indicates the presence of the one or more chemical contaminants at about a 1-2 Fm depth from the top layer surface.

22. (New) A method for monitoring in-situ a chemical composition at or near a surface of a wafer during plasma etch to detect defects comprising:

providing a semiconductor substrate comprising at least one top layer, wherein the semiconductor substrate comprises at least one chemical-containing contaminant;

subjecting the semiconductor substrate to a plasma etch process, whereby at least a portion of the top layer is removed;

during the plasma etch process, detecting for a presence of the chemical-containing contaminant and determining an amount of the chemical-containing contaminant using one of an Auger Electron Spectroscopy system or Energy Dispersive X-ray Analysis system; and

if present, determining whether the presence of the chemical-containing contaminant exceeds a threshold limit.

23. (New) The method of claim 1, wherein the at least one

chemical-containing contaminant includes any one of carbon, calcium, sulfur, aluminum, tungsten and nickel.

24. (New) The method of claim 22, wherein the semiconductor substrate is enclosed in a plasma etch chamber during the plasma etch process.

25. (New) The method of claim 24, wherein the plasma etch chamber comprises at least one chemical-contaminant-sensitive detector systems.

26. (New) The method of claim 22, wherein the defect detector, using one of an Auger Electron Spectroscopy system or Energy Dispersive X-ray Analysis system, indicates the presence of the one or more chemical contaminants at or below a top surface of the top layer.

27. (New) The method of claim 26, wherein the Auger electron spectroscopy system indicates the presence of the one or more chemical contaminants at a top surface of the top layer and at about a 1-5 nm depth from the top layer surface.

28. (New) The method of claim 26, wherein the Energy Dispersive X-ray Analysis system indicates the presence of the one or more chemical contaminants at about 1-2 Fm from the top layer surface.

29. (New) The method of claim 22, further comprising suspending a semiconductor fabrication process if the chemical-containing contaminant exceeds the threshold limit.